

Strategies to increase the quality of screening mammography: Systematic evaluation and feedback

Margarita Posso^{1,2}, Juan Martínez³, Ana Rodríguez³, Rodrigo Alcántara³, Belén Ejarque¹, Mónica Arranz¹, Judit Sivilla¹, Cristina Hernández¹, Xavier Castells^{1,2}, Francesc Macià^{1,2}

1. Department of Epidemiology and Evaluation, IMIM (Hospital del Mar Medical Research Institute), Barcelona, Spain.

2. Research Network on Health Services in Chronic Diseases (REDISSEC), Barcelona, Spain.

3. Department of Radiology, IMIM (Hospital del Mar Medical Research Institute), Barcelona, Spain.

Background

Several evaluation methods for assessing the quality of mammograms as well as systems for mammography classification are available. In Europe and Australia, the 'perfect, good, moderately good, and inadequate' PGMI system is widely used. We have adapted to digital mammography, and implemented to our Screening Unit, a systematic evaluation using the PGMI system. The results observed through 2015 to 2018 are reported here.

Methods

We performed an evaluation every six months. In each evaluation, a minimum number of 100 digital mammograms were randomly selected, after excluding the mammograms of women with breast implants or limited mobility. Three breast radiologists independently assessed mammograms and were blind to radiographer. For each breast and view, cranial-caudal (CC) and oblique-medium-lateral (OML), the radiologists evaluated sharpness, extraneous objects, skin folds, clear and complete visualization of the entire breast, nipple profile, and symmetry. An atlas containing images and definitions adapted to digital mammography was elaborated to facilitate the assessment.

Results

We observed a steady improvement of the quality of the mammograms over the period 2015-2018, and no major differences were observed according to radiographer. The proportion of OML perfect projections increased from 3.3 % (4/120) in February 2015 to 39.0 % (39/100) in November 2018.

Similarly, CC perfect projections varied from 5.8 % (7/120) in February 2015 to 21.0 % (21/100) in November 2018. The errors more frequently identified were those related with the inframammary angle, the position of pectoral muscle, the external glandular tissue, the shadow of the pectoral muscle, the skin folds, and the nipple profile.

After each evaluation, there was a feedback session with the radiographers and radiologists. This was carried out to discuss cases and propose improvement strategies.

Conclusions

A systematic evaluation and feedback have allowed us to considerably increase the proportion of perfect mammograms, always keeping the percentage of inadequate mammograms below 3 %.

Figure 1. Quality of oblique-medium-lateral (OML) screening mammography views. Hospital del Mar, Barcelona, 2015-2018.

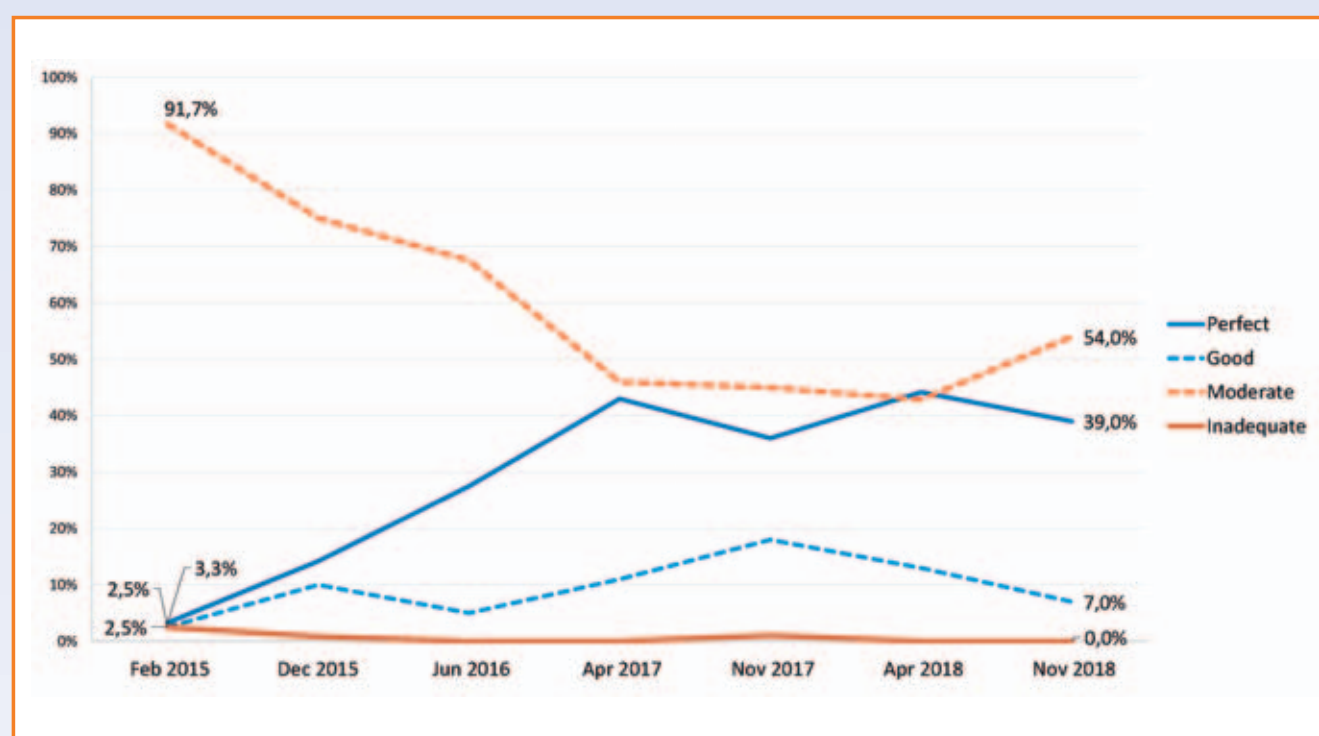


Figure 2. Quality of cranial-caudal (CC) screening mammography views. Hospital del Mar, Barcelona, 2015-2018.

